

# Result – Based Impact Management System (RIMS): Tools & Techniques <sup>1</sup>

**By**

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## **PROJECT EVALUATION: OVERVIEW OF PAPER 1**

- **Definition:**
- **Purposes of project evaluation:**
- **Sources of Evaluation data:**
- **Types of project Evaluation:**

**Informal project evaluation:**

**Focus of Informal evaluation:**

**Formal project evaluation:**

**Broad focus of formal project evaluation:**

**Specific focus of formal project evaluation:**

**Timing of formal project evaluation**

**Issues in the Evaluation of Project output, Effects and Impacts:**

**Mid-term project evaluation:**

**Terminal evaluation (a.k.a. project completion evaluation/report):**

**Ex post or Impact Evaluation:**

**Justifications:**

## **Measurements under Impact or ex post Evaluation:**

### **1. farming systems: what changes have occurred in the**

- Cropping patterns?
- Cropping intensities?
- Cultivation methods?

Extend enquiries to

- livestock components/projects
- fishery components/projects
- forestry components/projects

### **2. employment: how will employment/labour structure be affected by changes in**

- Cropping patterns?
- Introduction of new crops?
- Introduction of new methods and implements?

### **3. Income: an important impact variable;**

- productivity increase may not necessarily lead to higher farm income, perhaps because of
  - lower crop / livestock prices
  - higher input prices
  - higher taxes

### **4. Living standard: Proxies include:**

- health and
- nutrition

### **5. Gender-based impact study designs**

- Derivation of project **benefits may differ between gender groups**, arising from socio-cultural factors;

- **Access to resources may also differ between gender groups**, again due to socio-cultural factors;
- Must therefore **design impact studies to appreciate gender differences**, where such potentially exists.

## 6. project-based organizations/institutions

- for the local organizations/institutions formed or supported by the project, there is the need to assess them in terms of **continuity**

## 7. Environment:

- Project impact may be **positive in terms of socio-economic objectives**; but
- there is the need to assess effects on the **environment**, in terms of
  - soil
  - water quality
  - grazing lands
  - forests
  - wildlife

## METHODOLOGY FOR BENEFICIARY IMPACT ASSESSMENT OF A PROJECT:

### Sample selection:

For the purpose of ‘training’ we will assume that project beneficiaries are **stratified** along **gender groups**, to ensure access to all.

A **control population** will also be required to serve as basis for judging project impact on the beneficiaries.

Thus, **sub-sample A** consists of size **n** from the **beneficiary** population. Correspondingly, **sub-sample B** consists of size **m** from outside the project area (control). **These are two strata**. The process is called stratification.

### Other specific steps:

- **List** all beneficiaries and non-beneficiaries (control) of the project **completely** and **separately** by **gender** groups.
- Draw **n1 males** and **n2 females** such that  $n1 + n2 = n$ , **randomly**, from the beneficiary lists. (**Explain SRS to class**)
- From **outside the project area**, draw randomly **m1 males** and **m2 females** such that  $m1 + m2 = m$ .
- Weight **n1 and n2** appropriately in relation to sampling frame (population lists).
- Repeat same for **m1 and m2** in relation to the sampling frame for the non-project area.

### Types of data required:

1. **baseline data** – to be collected **before** project take-off;
2. **terminal** and/or **ex post** project survey data

### Survey instruments:

Baseline, terminal and/or ex post project **survey** should be conceived **at two levels**:

1. **household survey**
2. **community** (focus group discussion) survey

**The household survey instrument:** should be **structured** to detect **changes**, if any, in (for example) **income** and health status among the beneficiaries **relative to**

1. the **baseline**; and/or
2. the **non-project area** (control)

**The community level survey:** Ensure **proportionate gender** representations in the group that will be interviewed on behalf of the community. There will be **focus groups** in both the **project area** and the **non-project area** (control).

**The issues focused upon at the community survey level are those that were likely to affect every one in the community, e.g.,**

- rural roads, rural market infrastructure, rural health centres etc.;
- in what direction has the project affected the availability, access to, or management of **new** institutions?
- In the ‘control’ are there parallel institutions that could offer substitute services and how do these compare to those offered in the project area?

Attempt must be made to probe into issues that will help to ascertain whether the project has moved in the direction that **enabled its objectives to be fulfilled.**

In particular, **unintended effects should be detected through the structuring of the questions posed.**

### **Data analysis:**

The **tools of data analysis** will depend largely on the **stated objectives** and/or the **available data** (time series or cross sectional?)

Tools have usually included

- simple descriptive statistics,
- frequency tables,
- tests of differences of impact variable means between **present** and **baseline**, and between **beneficiaries** and **non-beneficiaries** (double difference impact assessment), as well as
- more formal regression analysis.

The **difference-in-differences** analysis:

- Requires good quality baseline data;
- The DD estimator compares changes in outcome measures (i.e., change from before to after the project) between project participants

and non-participants, rather than simply comparing outcome levels at one point in time.

$$DD = (Y_{p1} - Y_{p0}) - (Y_{np1} - Y_{np0})$$

- $Y_{p1}$  = outcome of beneficiaries after the project started;
  - $Y_{p0}$  = outcome of beneficiaries before the project started;
  - $Y_{np1}$  = outcome of non-beneficiaries after the project started; and
  - $Y_{np0}$  = outcome of non-beneficiaries before the project started.
- 
- Further testing of the **comparability of the selected groups** is done using a “balancing test”, which tests for statistically **significant differences in the means of the explanatory variables** between the matched groups of Fadama II participants and non-participants.

(Explain this some more)

- For **validity of test**, requires statistically insignificant differences in observable characteristics between the matched (two) groups.

## **DIFFICULT ISSUES IN BENEFICIARY IMPACT ASSESSMENT STUDIES:**

### **(i) Sample Selection:**

It is often **impossible to reach** every project beneficiary at **monitoring or evaluation**.

Thus, the recommendation is to take **a sample** of the project population. But, **how large** should a sample be?

**All that is mandatory** is that **every member** of the project population should have **equal chance** of inclusion in the sample.

This is called **probability sampling** and there are several methods of achieving this. Therefore:

- **a sample need not be large** (e.g. 5,000 of 100,000 or 100,000 of 1,000,000) to meet **inferential validity**;

- a **sample**, contrary to popular view, **need not bear any specified percentage** relationship (e.g. 10% or 20%) to the project beneficiary population size;
- indeed, sample size need only to be drawn in relation to noted **intra-population variation** (e.g. gender) and/or the need to ensure that the sample boundary estimates includes the **population value** at the desired confidence level (**layman: sample estimate MUST represent the population value**)

**(ii) Definition of adopters/non-adopters of project inputs/technologies:**

Suppose that an agricultural project has, as a **component** of the project, **delivery of fertilizer** to farmers.

How should **adoption/non-adoption** of fertilizer be measured at **monitoring** and **evaluation**? Examine the following options:

- all farmers who **bought** the fertilizer;
- all farmers who **applied** it but at < recommended rates;
- only farmers who **applied** it at recommended rates.

These **definitions** will lead to **different conclusions** at **monitoring** and **evaluation**. So, we must be clear about what we want to measure.

**Table xx: Example with fertilizer:**

<b>Area-based definition</b>	<b>Input-based definition</b>	<b>Remark</b>
Applied fertilizer to at least 2/3 of cropped land area	Applied fertilizer up to at least 2/3 of recommended level	Full adopters
Applied fertilizer to < 2/3 of cropped land area	Applied fertilizer at < 2/3 of recommended level	Partial adopters
Did not apply fertilizer at all	Did not apply fertilizer at all	Non-adopters

The **definition adopted** in these types of issues will have **implications** for the:

- emerging data,
- statistical analysis and



- the **inferences** made on project **impact** or lack of it among the project beneficiaries.

### **(iii) Output indicators:**

- Most agricultural projects **aim to increase agricultural outputs** and/or **income** of beneficiaries.
- But, it is often **difficult to measure** the influence of project on **changes in agricultural income or output**. **Why?**
- It is one thing to fully adopt project inputs (**a rare event**). But, **external factors** (e.g. weather) may limit output response.
- Also, **other projects** may have contributed to the observed outputs / incomes or changes, making isolation of project impact tough

### **(iv) Rates of return on projects:**

Economic and financial efficiency: what are the financial and economic rates of return on the money invested in the project? vs competing uses ?

**Financial rates of return:** computed from the viewpoint of **project participants** – farmers, government agencies, private firms, etc.

**Economic rates of return:** computed from the viewpoint of the **society as a whole**.

### **(v) Project impact assessment: from whose perspective?**

Project impact assessment can be undertaken from one of four viewpoints:

- government officials
- project staff
- beneficiaries
- donors

Controversy persist on the **usefulness of beneficiary assessments** in project evaluation reports. Here are **justifications** for its inclusion:

- beneficiaries have been known to give **informed opinions on the positive or negative impact of projects, provided the right questions are asked;**
- beneficiaries should be asked to assess **only aspects of the project they are familiar with**, e.g.
  - efficiency of input delivery systems
  - effect of recommended inputs on farm production
  - effect of project on living conditions

Beneficiary assessments and emerging conclusions from formal, more objective, data are complements, not substitutes.

## EXAMPLES OF PROJECT EVALUATION OUTCOMES:

### Example 1: Project for the promotion of a cash crop

**Intended result:** successful promotion of cash crops

**Unintended:** reduction in the area allocated to traditional food crops, reduced child nutritional status.

### Example 2: A water project for the provision of safe drinking water and improved health conditions

Table 7: Beneficiary assessment (illustrated):

Project achievement:	% respondents	Remark
Improved health	7	Intended effect
Improved water supply	75	Unintended effect
Time saving	10	Unintended effect
Stable food production (dry season farming enabled)	5	Unintended effect
Supplementary livestock production	3	Unintended effect
<b>Total</b>	<b>100</b>	

- Far less than 10% of the beneficiaries saw the project in the context of health improvement;
- most beneficiaries (>90%) saw the project as an intervention for

- increase in water availability;
- time saving, which enabled more time for non-farm income earning;
- stable food production, through enablement of dry season farming;
- supplementary livestock production

The foregoing is a case of **unintended project effects positively outweighing** the intended effects.

That is, the **unintended project effects need not be negative**.

### **Example 3: Vegetable processing and export project**

**Project population/Beneficiaries:** smallholder farmers

#### **Project components:**

- small credit facilities for inputs
- guaranteed vegetable prices

#### **Unintended results:**

Shift of land away from traditional food crops production.

#### **Intended/observed results:**

#### **Improved living conditions---**

- children's school enrolment improved and reduced street hawking by school-age children;
- gain in income by poorer families enabled improved access to basic needs, food, clothing, housing;
- for the richer families, income gain was diverted to investment in larger stores, land purchase, vehicle purchase;

## **Gender-related project results -----**

- Women – spent fewer days in vegetable vending in the local market;
- Men – spent more time in the (now) lucrative vegetable business, and less time in off-farm employment.

## **Example 4: A rural water supply project**

### **Project objectives:**

- sustainable reduction in water borne health problems
- sustainable increase in rural farm income

### **Project components:**

1. capacity building – organization of rural beneficiaries into groups; train them for effective management of project after completion
2. rural infrastructure (e.g., rural roads, market stalls)- for enhanced disposition of produce and, by extension, more income
3. Acquisition of productive assets (on-farm and post harvest), to enhance productivity, reduce post harvest losses and increase farm income.

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**APPENDIX 2: DATA FOR ILLUSTRATION OF BASELINE AND DOUBLE DIFFERENCE IMPACT ANALYSIS**

<b>Baseline data : t1</b>	<b>Impact assessment year: t2</b>	<b>Impact Variable : crop income</b>
<b>questnum</b>	<b>questionnaire/household serial number</b>	
<b>types</b>	<b>id.12 type of respondent</b>	<b>1= project beneficiary 2=non-beneficiary</b>
<b>pricr1t1</b>	<b>price of crop1 T1</b>	
<b>pricr1t2</b>	<b>price of crop 1 T2</b>	
<b>tocr1t1</b>	<b>total output crop1 T1</b>	
<b>tocr1t2</b>	<b>total output crop1 T2</b>	
<b>incr1t1</b>	<b>income from crop 1 t1</b>	
<b>incr1t2</b>	<b>income from crop 1 t2</b>	
<b>difincr1</b>	<b>difference btw income t2 and t1</b>	

<b>questnum</b>	<b>types</b>	<b>pricr1t1</b>	<b>pricr1t2</b>	<b>tocr1t1</b>	<b>tocr1t2</b>	<b>incr1t1</b>	<b>incr1t2</b>	<b>difincr1</b>
1	1	200	250	3752	3644	750400	911000	160600
2	1	60	70	3752	3644	225120	255080	29960
3	1	50	60	3752	3644	187600	218640	31040
4	1	100	120	3752	3644	375200	437280	62080
5	1	250	250	3752	3644	938000	911000	-27000
6	1	35	30	3752	3644	131320	109320	-22000
7	1	200	250	3752	3644	750400	911000	160600
8	1	200	250	3752	3644	750400	911000	160600
9	1	200	250	3752	3644	750400	911000	160600
10	1	30	54.3	835.2	885.6	25056	48088.08	23032.08
11	1	5.2	3.5	3752	3644	19510.4	12754	-6756.4
12	1	387	10	3752	3644	1452024	36440	-1415584
13	1	387	395	3752	3644	1452024	1439380	-12644
14	1	40	74	598	791	23920	58534	34614

15	1	200	250	3752	3644	750400	911000	160600
16	1	80	100	3752	3644	300160	364400	64240
17	1	35	30	720	720	25200	21600	-3600
18	1	180	200	3752	3644	675360	728800	53440
19	1	45	70	710	894	31950	62580	30630
20	1	10	10	3752	3644	37520	36440	-1080
21	1	300	250	3752	3644	1125600	911000	-214600
22	1	6	3.5	3752	3644	22512	12754	-9758
23	1	30	52.2	1075.2	1401.6	32256	73163.52	40907.52
24	1	30	38.31	720	924	21600	35398.44	13798.44
25	1	30	50	556.8	894.6	16704	44730	28026
26	1	1000	100	1600	2200	1600000	220000	-1380000
27	1	387	395	3752	3644	1452024	1439380	-12644
28	1	387	395	2000	2350	774000	928250	154250
29	1	387	395	3752	3644	1452024	1439380	-12644
30	1	387	395	3752	3644	1452024	1439380	-12644
31	1	25	40	2850	4400	71250	176000	104750
32	1	24	395	1800	2500	43200	987500	944300
33	1	387	395	3752	3644	1452024	1439380	-12644
34	1	387	395	3752	3644	1452024	1439380	-12644
35	1	55	60	3752	3644	206360	218640	12280
36	1	300	350	3752	3644	1125600	1275400	149800
37	1	4	5	3752	3644	15008	18220	3212
38	1	387	395	3752	3644	1452024	1439380	-12644
39	1	387	395	3752	3644	1452024	1439380	-12644
40	1	387	395	3752	3644	1452024	1439380	-12644
41	1	14	20	1150	1740	16100	34800	18700
42	1	55	80	200	4000	11000	320000	309000
43	1	18	33	3752	3644	67536	120252	52716
44	1	21	30	3752	3644	78792	109320	30528
45	1	2450	18	1600	1900	3920000	34200	-3885800
46	1	18	27	3752	3644	67536	98388	30852
47	1	387	395	3752	3644	1452024	1439380	-12644

48	1	387	395	3752	3644	1452024	1439380	-12644
49	1	387	395	3752	3644	1452024	1439380	-12644
50	1	387	395	3752	3644	1452024	1439380	-12644
51	2	150	300	3752	3644	562800	1093200	530400
52	2	120	120	3752	3644	450240	437280	-12960
53	2	2500	4000	3752	3644	9380000	14576000	5196000
54	2	30	35	32000	32000	960000	1120000	160000
55	2	250	300	3752	3644	938000	1093200	155200
56	2	7	7	3752	3644	26264	25508	-756
57	2	300	300	3752	3644	1125600	1093200	-32400
58	2	40	60	3752	3644	150080	218640	68560
59	2	50	50	3752	3644	187600	182200	-5400
60	2	70	80	180	200	12600	16000	3400
61	2	300	300	3752	3644	1125600	1093200	-32400
62	2	320	400	3752	3644	1200640	1457600	256960
63	2	10000	10000	3752	3644	37520000	36440000	-1080000
64	2	180	300	3752	3644	675360	1093200	417840
65	2	300	400	571.4	857.1	171420	342840	171420
66	2	0.1	0.1	3752	3644	375.2	364.4	-10.8
67	2	387	395	3752	3644	1452024	1439380	-12644
68	2	150	150	90	53.4	13500	8010	-5490
69	2	150	150	3752	3644	562800	546600	-16200
70	2	60	80	3752	3644	225120	291520	66400
71	2	0.1	0.1	3752	3644	375.2	364.4	-10.8
72	2	3000	3000	3752	3644	11256000	10932000	-324000
73	2	20	20	420	525	8400	10500	2100
74	2	5	5	3752	3644	18760	18220	-540
75	2	280	300	3752	3644	1050560	1093200	42640
76	2	5.6	6	14000	12000	78400	72000	-6400
77	2	32	36	6250	6875	200000	247500	47500
78	2	32	36	9625	9625	308000	346500	38500
79	2	36	30	800	600	28800	18000	-10800
80	2	32	40	6600	7200	211200	288000	76800



81	2	32	40	8250	7800	264000	312000	48000
82	2	32	52	5925	3500	189600	182000	-7600
83	2	32	48	3752	3644	120064	174912	54848
84	2	387	395	3752	3644	1452024	1439380	-12644
85	2	32	40	3752	3644	120064	145760	25696
86	2	50	45	15	3644	750	163980	163230
87	2	300	500	200	200	60000	100000	40000
88	2	50	45	3752	3644	187600	163980	-23620
89	2	300	500	600	500	180000	250000	70000
90	2	300	500	1000	500	300000	250000	-50000
91	2	1800	1500	3752	3644	6753600	5466000	-1287600
92	2	300	500	14375	8062.5	4312500	4031250	-281250
93	2	400	650	662	408.5	264800	265525	725
94	2	400	500	462.5	387.5	185000	193750	8750
95	2	80	40	1600	1012.5	128000	40500	-87500
96	2	300	500	3752	3644	1125600	1822000	696400
97	2	400	600	7500	6250	3000000	3750000	750000
98	2	400	600	10000	6250	4000000	3750000	-250000
99	2	400	600	5000	4375	2000000	2625000	625000
100	2	1800	1600	70	60	126000	96000	-30000

## APPENDIX 2.1 SAMPLE DOUBLE DIFFERENCE RESULTS;

INDICATOR=INCOME

### T-Test

Group Statistics

id.12 type of respondent	N	Mean	Std. Deviation	Std. Error Mean
difference btw income t2 and t1 1.00	50	-82107.9	637544.2708	90162.38
2.00	50	122922.9	800859.6376	113258.7

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
difference btw income t2 and t1	Equal variances assumed	.132	.717	-1.416	98	.160	-205030.8	144764.56	-492311	82249.80
	Equal variances not assumed			-1.416	93.310	.160	-205030.8	144764.56	-492492	82430.37